## 5.0 ESTIMATED REVENUE AND COSTS

This section reports the estimated revenue and costs associated with the recommended rail service plan described in Section 4. The expected Trans-Bay patronage for the Dumbarton Rail Corridor is first presented along with associated farebox revenue. Capital improvements and the estimate of probable costs for these items are summarized next. That reporting is followed by a cost estimate for acquiring or leasing rolling stock. assuming the use of conventional, Caltrain-type equipment. Given this equipment selection and corresponding train crew requirements, annual operating costs are then computed and reported in this Section.

### 5.1 Expected Patronage and Revenue

The Alameda County CMA model was used to develop estimates of line patronage for the Dumbarton Corridor passenger rail service. This model was selected due to its availability and the supposition that most of the ridership would live in Alameda County, and would be best represented by a model calibrated on demographic characteristics of Alarneda County residents.

Minor modifications were made to the model to improve the representation of walk access links and park and ride access links. No attempt was made to verify the trip generation. trip distribution or mode split performatice of the model insofar as Trans-Bay travel due to scope and budget constraints.

The year 2005 ABAG demographic data set, transportation network, and MTC county to countv commutation pattern was selected for testing ridership potentials. This timeframe best matched an implementation schedule that could be realistically delivered for the anticipated Dumbarton Corridor passenger rail service described in Section 4.

Using this model and the 2005 data set, initial Trans-Bay patronage is forecast to be 2500 to 2800 passengers (board ings) per day, with one-half traveling westbound in the morning and the other one-half returning home (eastbound) in the PM peak period. Over time, as worker/resident locational patterns adjust to take advantage of this commute alternative, patronage could double.

This estimate of ridership corresponds closely with estimates of Dumbarton Rail Corridor patronage forecast by the Dumbarion Rail Corridor Study by Parsons Brinkerhoff, Quade & Douglas of September, 1997. For the four build alternatives described earlier in Subsection 3.1 and illustrated in Figure 3-1, that study forecast a range of 1330 to 3380 daily transit trips traveling on the Dumbarton railroad bridge. **Table 5-1 Daily Volumes on the Dumbarton Railroad Bridge Year 2010** (page 5-2) is reproduced from that study's final report.

**Table 5-1**

**DAILY VOLUMES ON THE**
**DUMBARTON RAILROAD BRIDGE YEAR 2010**

| Alternative | Low | High |
|---|---|---|
| 1 | 1,330 | 2,630 |
| 2(1) | 204 | 640 |
| 3 | 2,200 | 3,380 |
| 4 | 2,480 | 2,640 |

(1) Eastbound volume

Source: Dumbarton Rail Corridor Study, Final Report: pg. 30, by Parsons Brinckerhoff Quade & Douglas, Inc., September, 1997.

The Trans-Bay ridership by line segment is depicted on **Figure 5-1 Dumbarton Rail Daily Passenger Volumes** (page 5-3). These ridership counts are two-way (AM plus PM boardings) and do not include inter Peninsula or inter East Bay riders originating in, and destined to San Mateo County for example.

Based on a station by station trip matrix, daily and annual fare box revenue has been estimated. The basis for this estimate is the existing Caltrain fare structure. Newark and Fremont Centerville were assumed to be in Dumbarton Rail Corridor fare Zone I while Union City was assumed to be in Dumbanon Rail Corridor fare Zone 2. A trip from Union City to Menlo Park, Atherton, Redwood City or San Carlos (representing a maximum one-way travel distance of 20.4 miles) would thus represent a three-zone trip. A trip from Fremont to San Carlos would represent a two-zone trip.

The distribution of Trans-Bay trips by number of fare zones traveled is estimated as follows:

- Two Zones - 26.2%
- Three Zones - 39.5%
- Four Zones - 16.3%
- Five Zones - 12.1%
- Six Zones - 5.9%

The corresponding daily revenue, assuming 1/40th of a monthly ticket as the average revenue per one-way trip, equals $4,782 for the daily ridership volume of 2,500 passengers and $5,356 at the 2,800 passenger per day level. Annual revenue, assuming 253 days of average revenue, would equal $1,210,000 to $1,355,700. Revenue derived from station parking and Trans-Bay "surcharges," if any, would generate additional farebox return as would fares collected from inter Peninsula and inter East Bay travelers.

[Figure 5-1]

**5.2 Required Capital Improvemcnts**

The market assessment analysis in Section 3.0 indicates a logical operating service will be to provide new Dumbarton commuter rail service between the Union City BART Station and both the Millbrae BART Station and downtown San Jose, by using a route composed of the following segments:

| Segment Limits | Description | Length in Miles |
|---|---|---|
| Union City BART Station Complex to Alameda Creek | Acquire track rights on the existing Canyon Subdivision trackage, between the Union City BART Station and the Alameda County Flood Control Channel. It is assumed that a third main track will not be needed. | 2.17 |
| New Connection under BART, near Shinn | South of the existing Alameda County Flood Control Channel, construct a one-track connection running under BART to the Centerville Line. | 0.24 |
| End of New Connection to Newark Junction | Acquire track rights on the existing Centerville Line trackage. it is assumed that a third main will not be needed. | 3.93 |
| Newark Junction to JPB Corridor (Redwood Junction) | Renovate the Dumbarton Rail Corridor to Provide one-track mainline operation. Maintain existing Dumbarton Corridor freight service near Redwood Junction and near Newark Junction. | 11.00 (Millbrae)<br><br>10.88 (San Jose) |
| Redwood Junction north to the Millbrae BART Station and south to San Jose (Diridon Station) | Run on existing JPB trackage. It is assumed that the Dumbarton fleet will be part of the added train runs that are being planned, and adequate layover facilities will be provided by others at Millbrae and San Jose. | 12.50 (Millbrae)<br><br>20.35 (San Jose) |

Required station and supporting facilities were described in detail in Subsection 4.2. This Subsection 5.2 summarizes needed capital improvements and associated costs, based on the detailed evaluations and estimates provided in the following Parsons Transportation Group documents:

- *Corridor Rehabilitation, Redwood Junction to Newark Junction; Capital Investments Working Paper,* July 1999.
- *Improvements East of Newark Junction, Stations and Supporting Facilities; Capital Investments Working Paper,* July 1999.

**Table 5-2 Estimated Capital Costs** (page 5-5) summarizes the capital investments, by corridor. It is assumed that no additional improvements will be needed as a result of

Dumbarton service in the JPB Corridor, beyond those that are already prograrnmed or planned.

**Table 5-2**
**ESTIMATED CAPITAL COSTS**

| | Estimated Costs, in millions, by Corridor | | | |
|---|---|---|---|---|
| **Category and Work Item** | **JPB Peninsula Line** | **Dumbarton Corridor** | **East of Newark Junction** | **Total** |
| **Track and Roadway** | | | | |
| ·Track Upgrade | | 6.96 | | 6.96 |
| ·New Track | | 1.70 | 0.38 | 2.08 |
| Signals | | | | |
| ·Train Signals | | 3.09 | 0.36 | 3.45 |
| **At-Grade Crossings** | | | | |
| ·Warning Devices | | 1.05 | 0.21 | 1.26 |
| ·Crossing Panels | | 0.47 | 0.01 | 0.48 |
| **Structures** | | | | |
| ·Structures | | 21.67 | 2.37 | 24.04 |
| **Stations** | | | | |
| ·Stations,Parking and | | 0.81 | 1.32 | 2.13 |
| Facilities | | | | |
| **Supporting Facilities** | | | | |
| ·Train Storage Area | See Note | | 1.00 | 1.00 |
| **Construction Total** | | **35.75** | **5.65** | **41.40** |
| **Right-of-Way Acquisition** | | | | |
| ·New Track Connection | | | 1.16 | 1.16 |
| ·Station Areas | | 1.35 | 2.89 | 4.24 |
| ·Train Storage Area | See Note | | 0.63 | 0.63 |
| **Right-of-Way Total** | | **1.35** | **4.68** | **6.03** |
| ·Contingencies | | 11.27 | 3.28 | 14.55 |
| ·Project Engineering, | | 12.43 | 3.01 | 15.44 |
| Administration; and | | | | |
| Implementation | | | | |
| ·Property Acquisition | | 1.35 | 7.47 | 8.82 |
| Reserve | | | | |
| **Total Projcct Cost** | **See Note** | **62.15** | **24.09** | **86.24** |

Note: It is assumed that any supporting facilities needed in the JPB Corridor (i.e., mid-day layover facilities in Millbrae and San Jose) will be constructed as part of other programmed or planned improvements.

Costs are based on current year 1999 dollars.

The largest cost element identified in Table 5-2 is for structures. From west to east. the Dumbarton Corridor now includes ten bridge structures1 as follows:

- U.S. 101 Underpass; steel through truss.
- West Timber Trestle on San Francisco Bay.
- West Concrete Trestle on San Francisco Bay.
- West Approach to Dumbarton Bridge; Concrete Trestle on San Francisco Bay.

- Dumbanon Bridge; six truss spans, three short deck girder transition spans, and one steel swing span San Francisco Bay.
- East Approach to Dumbarton Bridge; Concrete Trestle on San Francisco Bay.
- East Approach to Dumbarton Bridge; Timber Trestle on San Francisco Bay.
- West Approach to Newark Slough; timber trestle.
- Newark Slough Bridge; one steel swing span and two steel deck girder transition spans.
- East Approach to Newark Slough; timber trestle.

The proposed improvements follow:

- Replace all timber trestles with precast prestressed concrete box girders on concrete pile bents.
- Replace Dumbarton Bridge steel trusses and deck girders with precast prestressed concrete box girders on concrete pile bents.
- Rehabilitate Dumbarton Bridge steel swing span and swing span mechanical system.
- Replace Newark Slough steel deck girders with precast prestressed concrete box girders on concrete pile bents.
- Rehabilitate Newark Slough steel swing span and swing span mechanical system.

The following track, roadway, and signal improvements are recommended as part of the capital improvement program;

- Trackway: Upgrade turnouts, replace switch ties, resurface and ballast the corridor, rebuild at-grade crossings, create bypass for Leslie Salt, improve Redwood Junction, and improve Newark Junction.
- Signals: Install CTC.

Most proposed stations are in areas experiencing commercial development. Potential for rapidly escalating real estate values warrants that a "property acquisition reserve" be established.

Table 5-2 summarizes all the capital improvements required to provide the physical facilities that will allow implementing the recommended rail service plan for reactivating the Dumbarton Rail Corridor. The total estimate of $86.24 million (1999 dollars) consists of $62.15 million for improvements for the Dumbarton Corridor, and $24.09 million in improvements east of Newark Junction.

### 5.3 Equipmcnt Leasing Cost

Subsection 4.4 summarized an evaluation of rolling stock opuons and concluded the Dumbarton service as now planned should be based on using conventional equipment. similar to the existing Caltrain fleet. The following cost estimate is prepared on that basis.

The initial Dumbarton fleet would allow for fielding of six train consists comprised of one locomotive, one or two passenger coaches, and one cab car. This fleet would provide an average load factor of 0.67 passengers per seat across the Dumbarton Railroad Bridge, assuming 2,800 passengers per day. The fleet is estimated to cost $43 million (based on current prices). A cost breakdown for this fleet is as follows:

| | | Cost in millions of dollars | | |
|---|---|---|---|---|
| Number | Vehicle Type | Unit Cost | Total Cost | |
| 6 | Locomotives | $2.10 | $12.60 | |
| 9 | Coach Cars | 1.60 | 14.40 | |
| 6 | Cars with Cabs | 1.75 | 10.50 | |
| | | Subtotal = | $37.50 | |
| Equivalent of 15% Rolling Stock Spare | | Allowance | | 5.63 |
| | | **Total =** | **$43.13** | |

Assuming the needed Dumbarton fleet could be leased for a 25-year period with an 8.25% interest rate. the uniform lease payments would be approximately $4.13 million annually.

### 5.4 Annual Operating Costs

This report subsection is a summary of the operating and maintenance cost analyses documented in *Operating Costs Working Paper*, July 1999, by the Parsons Transportation Group. The four tables at the close of this subsection are reproduced from that working paper.

For purposes of this study, it is assumed that the Dumbarton Corridor operations will be an extension of the JPB's Caltrain service. Thus, in most cases, operating and maintenance expenditures will be similar to Caltrain's current per-train-mile experience, as shown in **Table 5-3 Current Caltrain Operating Costs** (page 5-11).

The current study first identified those cost items that would be similar to Caltrain operations. and then did independent estimate for unique items. **Table 5-4 Adjusted Train Operating Costs** (page 5-11) indicates, by operating corridor (i.e., JPB, Dumbarton and UP), where the train-mile rates may be applied. and where independent estimates are warranted. In the latter case, Table 54 indicates exceptions. which are explained in footnotes. The table also indicates the resulting "net per-train mile rates", if the following items are removed:

- Crew labor costs.
- Dumbarton station operating and maintenance costs, east of Redwood Junction.
- Bridge and maintenance-of-way costs in the Dumbarton Corridor (Redwood Junction to Newark Junction).

The October 1 1998 *Caltrain Rapid Rail Study* discussed trackage rights for the Dumbarton service and, based on an industry comparison, assumed trackage rights would cost approximately $5.76 per train mile, which includes track maintenance and

dispatching. ACE is currently paying about $6.00 per train mile. The Dumbarton service will require closer coordination of trains by UP dispatchers and additional tracks will need to be maintained by the UP for passenger rail service. Thus, a $7.00 track use fee has been assumed for the current study. The actual rate will need to be negotiated with the UP. Other factors such as the capital improvement connecting the Centerville Line and Canyon Subdivision will be involved in the negoflations.

The travel distances for each train (in miles) by corridor, will be as indicated below:

| | In JPB Corridor | In Dumbarton Corridor | Over UP Trackage |
|---|---|---|---|
| ·Between Union City and Millbrae | 13.0 | 11.0 | 6.8 |
| ·Between Union City and San Jose | 21.9 | 10.9 | 6.8 |

The revenue mileage on the JPB Line will be 12.5 and 20.4 miles for the runs to (or from) Millbrae and San Jose, respectively. It is estimated that the mid-day layovers will involve 0.5 mile and 1.5 miles of non-revenue travel per train run, at Millbrae and San Jose. respectively. Over UP trackage. the revenue run will be 6.5 miles; distances to/from storage in Union City were estimated to be 0.3 mile per train run.

If the net per-train-mile rates by corridor listed in Table 5-4 are multiplied by the associated distances, and totaled, the result is the following per-train cost. for the items included in the per-train-mile rates:

- Between Union City and Millbrae = approximately $ 805 per train trip
- Between Union City and San Jose approximately $1,080 per train trip

Based on current labor agreements, Caltrain crew labor costs approximately $94 per train hour, and crews are paid at half normal rates during mid-day breaks. These figures exclude agency overhead (approximately 31.5%). For preliminary costing purposes, it has been assumed that each of the six train crews will work a 12.5-hour day, with two 2.5-hour duty periods separated by a 7.5-hour break. This labor utilization will equate to 8.75 hours of compensation, or about 4.4 crew hours per train run. This staffing level will equate 10 a per-train-run labor cost of $544, including the agency overhead allowance. Combining the per-train-mile costs with the per-train-run costs yields the following cost for daily train operations:

- Between Union City and Millbrae = $1,349 per train trip times six trips per day = $8,094
- Between Union City and San Jose = $1,624 per train trip times six trips per day = $9,744

Assuming service is provided weekdays except for seven annual holidays, the total annual operating costs (excluding stations east of Redwood Junction and Dumbarton Corridor maintenance) would be approximately $4,513,000.

The JPB, with Amtrak as their contractor, is responsible for maintaining most of the Caltrain stations, including (typically) janitorial services inside station buildings, landscaping and exterior trash removal, parking lot maintenance and revenue collection. lfl certain cases, cities also provide assistance in operating and maintaining station complexes. Although Amtrak also provides some security services, this is usually reinforced indirectly by the local municipal police as part of other routine duties. JPB Real Estate staff have suggested to the Parsons Transportation Group staff that it would be reasonable to assume that annual station maintenance costs will average approximately $40,000 per station. lncluding an allowance of 31.5% for agency overhead, this equates to a fully burdened rate of $53,000 per station. The Working Paper cited at the start of this subsection discusses the unique station operating and maintenance envirorrrnents that will occur at each of the five Dumbarton Corridor stations, east of Redwood Junction. Overall, some stations will have lower than average costs and others will have more. Thus the estimated station operating and maintenance cost, based on $53,000 per station for four stations, is $212,000 per year.

Subsection 5.2 summarized the bridge and other physical plant improvements that will be required before the Dumbarton Corridor can be used for commuter rail service. Similar to other major facilities. after a number of decades, additional major renovations and repairs may be required. For purposes of estimating operating and maintenance costs, these future major repairs are not included.

**Table 5-5 Annual Operating and Maintenance Cost: Dumbarton Corridor Bridges** (page 5-12) summarizes the costs that will be associated with operating and maintaining the renovated and new bridges including the Dumbarton Swing Span and Newark Slough Swing Span. The annual cost for operating and maintaining Dumbarton Corridor bridges is estimated to be $229,000.

Both movable bridges must be maintained in accordance with Coast Guard regulations. The Coast Guard has recently indicated that each day, as many as 30 commercial fishing boats and several recreational vessels require opening the Dumbarton Swing Span. Barge trips, dredges, and construction rigs also occasionally require opening this span. The Newark Slough has minimal vessel traffic and needs to be opened about once a year for vessels related to levee construction, shore maintenance and U.S. Fish and Wildlife activities. The Alameda County Flood Control District, the National Wildlife Refuge, and other agencies have an interest in maintaining navigation through the Newark Slough, including the serviceability of the moveable bridge.

The Coast Guard has expressed willingness to consider special regulations for both bridges that are fair to all parties. It is noted that commercial fishing vessels commute to their work by waterway. Their schedules are controlled by factors such as tides, trip itinerary, and other business/personal interests. The Coast Guard has indicated that the Dumbarton Bridge could be under procedures that require the bridge to be opened at specific periods during the day, including brief periods during the commute hours. Alternatively, an agreement could be proposed that leaves the bridge open during non-commute hours and provides for a "call up" or notification to the bridge owner/operator

to open the bridge during commute hours. The on-call bridge opening could be delayed by several minutes depending on the location of the next train. The Newark Slough Bridge could be regulated under a program that requires advance notice to the bridge owner/operator. The advance notice could be proposed as one month; however, a reasonable response would be given if emergency flood control or levee maintenance is required.

The costs shown in Table 5-5 reflect the following assumptions for the two moveable bridges.

- On weekdays, provide one bridge tender at the Dumbarton Swing Span, four hours in the morning. and four hours in the late afternoon.
- Four days a year. provide two bridge tender trips (four hours each trip) for the Newark Slough Bridge.
- Perform one mechanical/electrical inspection of both moveable bridges each year. Perform structural inspection of both bridges once every two years.

**Table 5-6 Annual Operating and Maintenance Cost: Dumbarton Corridor Track, Roadbed and Signals** (page 5-12) summarizes the expected expenditures for operating and maintaining the renovated trackway and supporting systems (e.g., grade crossings, communications and signals) between Redwood Junction and Newark Junction. The tabulated electrical costs are based on a monthly per-mile-month rate that is about half the Caltrain average, because the Dumbarton Corridor will have fewer at-grade crossings, will have no maintenance/layover facilities, and will have only two simple stations with limited parking/circulation areas. The other tabulated costs reflect the following assumptions:

- Inspections by a two-person party once a month.
- Track maintenance and clearing of right-of-way debris and foliage occurs 10 days per year, using a four-person crew.

The overall maintenance of way activities in the Dumbarton Corridor are expected to cost approximately $349,000 per year.

Based on the above approach, the annual operating and maintenance expenses associated with the recommended Dumbarton Corridor service scenario are expected to cost, as follow:

```
·Train operations and related overall cost items     $4.51 million
·Station operations (east of Redwood Junction)               0.21
·Bridge operations and maintenance                    0.23
·Dumbarton Corridor way maintenance and operations    0.35
                                              Total = $5.30 million
```

These figures are based primarily on current Caltrain operating costs.

## Table 5-3
## CURRENT CALTRAIN OPERATING COSTS

| Category | Operating Cost Item | Total Cost | Cost Per Train Mile |
|---|---|---|---|
| Train Operations | ·Train Operations (Crew) | $12,600,000 | $12.49 |
| | ·Fuel | 3,000,000 | 2.98 |
| | ·Train Dispatching | 900,000 | 0.89 |
| Equipment and Facilities | ·Equipment Maintenance | 7,700,000 | 7.63 |
| | ·Track/Facilities Maintenance | | |
| | Exterior Cleaning | 5,500,000 | 5.45 |
| | ·Revenue Collection (Station) | 2,000,000 | 1.98 |
| | ·Station Maintenance | 900,000 | 0.89 |
| Other Items | ·General Manager Staff | 1,600,000 | 1.59 |
| | ·Police | 1,100,000 | 1.09 |
| | ·Revenue Accounting | 400,000 | 0.40 |
| | ·Materials Control, Leases, Insurance, Marketing | 400,000 | 0.40 |
| | ·Budget and Finance | 400,000 | 0.40 |
| | **Totals without Agency Overhead** | **$36,500,000** | **$36.19** |
| Agency Overhead | Approximately 31.5% of above items | 11,500,000 | 11.40 |
| | **Total Agency Cost** | **$48,000,000** | **$47.59** |

Per train mile rates are based on 1,008,654 train miles. Source: Woodside Consultants. July 1999

## Table 5-4
## ADJUSTED TRAIN OPERATING COSTS PER TRAIN MILE

| Category | Operating Cost Item | Net Cost Per Train Mile In JPB Corridor | In Dumbarton Corridor Over UP | Trackage |
|---|---|---|---|---|
| Train Operations | ·Interior Train Operations(Crew) | Excluded(1) | Excluded(2) | Excluded(1) |
| | ·Fuel | $ 2.98 | $ 2.98 | $ 2.98 |
| | ·Train Disatching | 0.89 | 0.89 | Excluded(2) |
| Equipment and | ·Equipment Maintenance | 7.63 | 7.63 | 7.63 |

| | | | | |
|---|---|---|---|---|
| Facilities | ·Track/Facilities Maintenance | 5.45 | | |
| Excluded(4) | Excluded(3) | | | |
| | ·Revenue Collection (Station) | 1.98 | | |
| Excluded(4) | Excluded(4) | | | |
| | ·Station Maintenance | 0.89 | | |
| Excluded(4) | Excluded(4) | | | |
| Other Items | | 3.88 | 3.88 | 3.88 |
| | **Totals without Agency Overhead** | **$23.70** | **$15.38** | **$14.49** |
| Agency | Approximately | | | |
| Overhead | 31.5% of above items | 7.47 | 4.84 | 4.56 |
| Track Use Charge | | - | - | 7.00 |
| | **Total Agency Cost, per train mile** | **$31.17** | **$20.22** | **$26.05** |

(1) Per-train labor costs are not dependent on corridor.
(2) Dispatching would be provided by UP with costs covered under trackage fees.
(3) UP would perform maintenance with costs covered under trackage fee.
(4) Dumbarton Corridor bridge and track operating and maintenance costs are calculated in a following table. Station operating and maintenance costs are identified elsewhere on a per station basis.

## Table 5-5

## ANNUAL OPERATING AND MAINTENANCE COST: DUMBARTON CORRIDOR BRIDGES

| Ref. | **Bridge Type/Operating/Maintenance Activity** | Estimated Annual Cost |
|---|---|---|
| | **Dumbarton Swing Span and Newark Swing Span** | |
| 1. | Dumbarton Bridge Tender: 2000 hrs. x $50/hr. | $100,000 |
| 2. | Newark Slough Bridge Tender: 2 x 16 lirs. x SO/lirs. | $ 2,000 |
| 3. | Mechanical/Electrical Inspection $10,000/year | $ 10,000 |
| 4. | Structural Inspection: $20,000 every two years | $ 10,000 |
| 5. | Mechanical/Electrical Servicing and Fueling | $ 10,000 |
| 6. | Painting: $100,000/15 years | $ 7,000 |
| 7. | Miscellaneous and Travel | $ 10,000 |
| | Subtotal for Both Swing Span Bridges | $149,000 |
| | **Concrete Bridges** | |
| 1. | Structural Inspections $50,000 every two years | $ 25,000 |
| | **Agency Overhead** (approximately 31.5%) | **$ 55,000** |
| | **Total Annual Maintenance for Bridges** | **$229,000** |

## Table 5-6

## ANNUAL OPERATING AND MAINTENANCE COST: DUMBARTON CORRIDOR TRACK, ROADBED AND SIGNALS

| Item/Analysis | | Estimated Annual Cost |
|---|---|---|
| Dumbarton Corridor Maintenance-of-Way | | |
| Annual | Costs (Maintenance-of-Way) | |
| 1. | Inspections | |
| a. | Labor: Hi-Rail and Walking; 2 men x 4 hrs. x 10 | $ 72,000 |
| | days/month x $75/hr. x 12 months | |
| b. | Other Direct Cost: $100/day x 10 days/month/12 months | $ 12,000 |

| | | |
|---|---|---|
| | Subtotal | $ 84,000 |
| 2. | Signals: Maintenance | |
| | a. Labor: | $100,000 |
| | b. Other Direct Costs: | $ 20,000 |
| | Subtotal | $120,000 |
| 3. | Track Maintenance and Clearing of FoliagUDebris | |
| | a. Labor: 4 men x 8 hrs.x 10 days x $75 | $ 24,000 |
| | b. Other Direct Costs: $200/day x 10 days | $ 2,000 |
| | Subtotal | $ 26,000 |
| | Items 1, 2, and 3 Subtotal | $230,000 |
| 4. | Allowance for Agency Overhead (approximately 31.5%) | $ 72,000 |
| 5. | Electrical Utility | |
| | a. $3,900/month x 12 months | $ 47,000 |
| **Total Annual Maintenance of Way Cost** | | **$349,000** |

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